

## IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A golf ball comprising:
  - a center comprising:
    - a resilient polymer comprising polybutadiene having a molecular weight of greater than about 200,000;
    - a crosslinking material present in an amount of about 10 to about 40 parts per hundred of the resilient polymer;
    - a free radical source present in an amount of about 0.1 to about 15 parts per hundred of the resilient polymer;
    - a cis-to-trans catalyst present in an amount of about 0.1 to about 10 parts per hundred of the resilient polymer, wherein the cis-to-trans catalyst comprises a metal organosulfur compound; and
  - a cover comprising a thermoplastic or thermoset polyurethane.
2. (Original) The golf ball of claim 1, wherein the molecular weight of the polybutadiene is greater than about 250,000.
3. (Original) The golf ball of claim 2, wherein the molecular weight of the polybutadiene is from about 300,000 to about 500,000.
4. (Original) The golf ball of claim 1, wherein the polybutadiene comprises less than about 7 percent vinyl isomer.
5. (Original) The golf ball of claim 4, wherein the polybutadiene comprises less than about 4 percent vinyl isomer.
6. – 11. (Canceled)

12. (Original) The golf ball of claim 1, wherein the polyurethane comprises an isocyanate selected from the group consisting of 4,4'-diphenylmethane diisocyanate, polymeric MDI, carbodiimide-modified liquid MDI, 4,4'-dicyclohexylmethane diisocyanate, *p*-phenylene diisocyanate, toluene diisocyanate, 3,3'-dimethyl-4,4'-biphenylene diisocyanate, isophoronediiisocyanate, hexamethylene diisocyanate, naphthalene diisocyanate; xylene diisocyanate; para-tetramethylxylene diisocyanate; meta-tetramethylxylene diisocyanate; ethylene diisocyanate; propylene-1,2-diisocyanate; tetramethylene-1,4-diisocyanate; cyclohexyl diisocyanate; 1,6-hexamethylene- diisocyanate; dodecane-1,12-diisocyanate; cyclobutane-1,3- diisocyanate; cyclohexane-1,3- diisocyanate; cyclohexane-1,4-diisocyanate; 1-isocyanato-3,3,5- trimethyl-5- isocyanatomethylcyclohexane; methyl cyclohexylene diisocyanate; triisocyanate of hexamethylene diisocyanate; triisocyanate of 2,4,4-trimethyl- 1,6-hexane diisocyanate, tetracene diisocyanate, naphthalene diisocyanate, anthracene diisocyanate, and mixtures thereof.
13. (Original) The golf ball of claim 12, wherein the isocyanate is 4,4'-diphenylmethane diisocyanate.
14. (Original) The golf ball of claim 12, wherein the isocyanate is 4,4'-dicyclohexylmethane diisocyanate.
15. (Original) The golf ball of claim 1, wherein the polyurethane comprises less than about 0.1 percent free monomer groups.
16. (Currently Amended) The golf ball of claim 1, wherein the polyurethane comprises a polyol is selected from the group consisting of a polyether polyol, hydroxy-terminated polybutadiene, polyester polyol, polycaprolactone polyol, polycarbonate polyol, or mixtures thereof.
17. (Currently Amended) A golf ball comprising:  
a center comprising:

a resilient polymer comprising polybutadiene having a molecular weight of greater than about 200,000;  
a crosslinking material present in an amount of about 10 to about 40 parts per hundred of the resilient polymer;  
a free radical source present in an amount of about 0.1 to about 15 parts per hundred of the resilient polymer;  
a cis-to-trans catalyst present in an amount sufficient to produce a resilient polymer comprising about [[12]] 32 percent or greater trans-polybutadiene isomer; and  
a cover formed of a castable reactive liquid material, wherein the cover has a hardness of about 30 Shore D to about 60 Shore D.

18. (Original) The golf ball of claim 17, wherein the free radical source comprises an organic peroxide.

19. (Original) The golf ball of claim 17, wherein the cis-to-trans catalyst comprises 4,4'-diphenyl disulfide, 4,4'-ditolyl disulfide, 2,2'-benzamido diphenyl disulfide, or a combination thereof.

20. (Original) The golf ball of claim 17, wherein the cis-to-trans catalyst is present in an amount of about 0.1 to about 8 parts per hundred of the resilient polymer.

21. (Original) The golf ball of claim 17, wherein the castable reactive liquid material comprises urethane.

Please add the following new claims:

22. (New) A golf ball comprising:

a center comprising:

a resilient polymer comprising polybutadiene having a molecular weight of greater than about 200,000;

a crosslinking material present in an amount of about 10 to about 40 parts per hundred of the resilient polymer;  
a free radical source present in an amount of about 0.1 to about 15 parts per hundred of the resilient polymer;  
a cis-to-trans catalyst comprising a metal organosulfur compound, wherein the cis-to-trans catalyst is present in an amount sufficient to produce a resilient polymer comprising about 32 percent or greater trans-isomer; and  
a cover formed of a castable reactive liquid material.

23. (New) The golf ball of claim 22, wherein the cover has a hardness of about 30 Shore D to about 60 Shore D.
24. (New) The golf ball of claim 22, wherein the castable reactive liquid material comprises urethane.
25. (New) The golf ball of claim 22, wherein the cis-to-trans catalyst is present in an amount of about 0.1 to about 10 parts per hundred of the resilient polymer.